Supplement to Basic Technical Order

RPG RS-232 SERIAL CABLE UPGRADE FOR PPP

DOPPLER METEOROLOGICAL RADAR
WSR-88D

PUBLISHED UNDER AUTHORITY OF THE SECRETARIES OF
COMMERCE, THE AIR FORCE, THE NAVY, AND TRANSPORTATION

NWS/DoD APPROVAL:

BY ORDER OF THE SECRETARY OF THE AIR FORCE

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NOTE

(NWS) This amendment supplements Modification Note 65, EHB-6, Issuance 03-02, issuance date 12 February 2003.

(DoD) This technical order supplements TO 31P1-4-108-607, data code 3118781, issuance date 12 February 2003.

This amendment affects the cover page.

1.   SUBJECT

RPG RS-232 Serial Cable Upgrade for PPP.

2.   PURPOSE

The purpose of this amendment correct cable labeling instructions for the serial cables, correct modem relocation instructions and provide better clarification in the subject.

The authority for this modification is Operational Support Facility (OSF) Engineering Change Proposal (ECP) F0158.

For additional information concerning this document, contact the OSF Hotline, Norman, Oklahoma; phone number: (800) 643-3363 or (405) 366-2980 or by e-mail at Hotline@osf.noaa.gov. An electronic copy of this document can be found at the following internet address: www.osf.noaa.gov/ssb/sysdoc/techman/tmlinks.htm

3.   SITES AFFECTED

This NWS amendment, DoD supplement, FAA EEM applies to all sites listed in ATTACHMENT 9.

15.   PROCEDURES

Use the following table to remove and replace the affected pages. Place this amendment in front of the original Combined Document (Modification Note 65, TO 31P1-4-108-607, and EEM Modification Handbook 6345.1 CHG 38, Chap 35), as an official record of the changes made below:

Remove Pages	Replacement Pages
3-4	Revised 3, Original 4
B7-B8	Revised B7, Original B8
E3-E4 Blank	Revised E3, E4 Blank
F21-F22	Revised F21, Original F22
F25-F26	Revised F25, Revised F26
F27-F28	Revised F27, Original F28
I1-I2	Revised I1, Revised I2

1. **SUBJECT**

Radar Product Generator (RPG) Serial Cable Upgrade for Point-to-Point Protocol (PPP).

2. **PURPOSE**

This document provides instructions to change a limited number of ports from the X.25 protocol to the Point-to-Point Protocol (PPP). This change is required to support an upcoming conversion of the DoD radar display system called the Open Principal User Processor (OPUP) system from X.25 to PPP.

For the NWS configuration, five dedicated ports will be converted from X.25 to PPP. For the DoD/FAA configuration, four dedicated ports will be converted. Additionally, all configurations will have one dial-in port converted at this time. The 3 figures shown in Attachment 8 summarize which ports are being converted by this modification.

Conversion involves re-mapping the modem serial cable from a Performance Technologies Incorporated (PTI) X.25 serial communications controller to a PPP configured serial port on the Cisco 3640 router. Also, the respective modem must be configured to support PPP.

No telecommunication changes will be done with this modification. The telecommunication changes will occur in conjunction with OPUP upgrades and a subsequent RPG modification note.

In the future, an RPG associated modification will be provided to the field completing the serial cable upgrade. The associated modification will provide two more cables to complete the conversion of two DoD dial ports from X.25 to PPP.

Revision 1 of EHB 6-525, dated 30 April 2003, provides the documentation change for both modifications. The authority for this modification is ECP 0158, ORPG PPP SERIAL HW FOR DoD.

For additional information concerning this document, contact the Radar Operations Center (ROC) Hotline, Norman, OK; phone number: (800) 643-3363 or (405) 366-2980 or by e-mail at NEXRAD.Hotline@noaa.gov. An electronic copy of this document can be found at the following internet address:
www.roc.noaa.gov/ssb/sysdoc/techman/tmlinks.asp

3. **SITES AFFECTED**

See ATTACHMENT 9.

4.   ESTIMATED COMPLETION DATE

This modification must be reported completed no later than 60 days after receipt of this document and the date the kit was shipped from the National Logistics Support Center (NLSC).

5.   EQUIPMENT AFFECTED

Radar Product Generator Group.

6.   SPARES AFFECTED

Not applicable.

7.   MODIFICATION ACCOMPLISHED BY

Site electronics technicians will perform this modification. Two technicians are required to perform this action.

8.   MATERIAL REQUIRED

Use ATTACHMENT 9 for kit applicability for your site.

Kit A. (DoD and FAA only)

Nomenclature	Part Number	NSN	Qty
Cable Assembly, Serial RS232 Data Terminal Equipment (DTE)	2200100-201	NWS0-11-210-0027	5

Kit B. (NWS Only)

Nomenclature	Part Number	NSN	Qty
Cable Assembly, Serial RS232 DTE	2200100-201	NWS0-11-210-0027	6

Kit C. (NWS and DoD)

Nomenclature	Part Number	NSN	Qty
Modem, Dedicated Data	1219739-207	5895-01-377-7105	1

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	**Procedure**	**Response**	**Comment**
7.	Using the mouse, highlight line 32. Press and hold the **<Shift>** key on the keyboard, and then click on line 40.	Lines 32 through 40 are highlighted in black.	
8.	Click on the **Disconnect** button to disconnect lines 32 through 40.	The status of each line will change to a status of DISCON.	This sends the SNMP control command to the router to shutdown the serial interfaces 2/0 (NWS only) and 2/1 through 2/7 (DoD/FAA and NWS configurations).
STEPS 9 - 14 STARTS TWO DIFFERENT TELNET SESSIONS WITH ROUTER			
NOTE The following steps require two telnet sessions to be opened at the same time. Any inactivity in either session for approximately 10 minutes will cause the telnet session to time out. If a time-out occurs, repeat steps 9 through 12 to reactivate the session. If a time-out occurs in the first window, also repeat step 15. To avoid a time-out, periodically press the **<CR>** key in the telnet session.			
9.	Open two different terminal windows on the RPG workstation, and place both windows side-by-side in front of all other open windows on the desktop.		
10.	Perform steps 11 through 14 in each terminal window.	Two router telnet sessions will be opened and used during the loopback procedure.	One telnet session will display router debug information. The second telnet session will be used to turn the serial ports on and off.

ATTACHMENT 2 (Continued)

SERIAL MODULE REMOVE AND REPLACE PROCEDURE AND LOOPBACK VERIFICATION

Table 3 Loopback Procedures

LOOPBACK PROCEDURE			
Step	**Procedure**	**Response**	**Comment**

11.	If this is a single channel RPG or FAA redundant channel 1, at the prompt, enter:
	telnet rtr<CR>
	or
	telnet rtr1<CR>
	
	If this is a FAA redundant channel 2, at the prompt, enter:
	telnet rtr2<CR>
		The response for NWS and DoD will be, where XXX corresponds to the specific RPG IP subnet:
		
		`Trying 172.25.XXX.7...`
		`Connected to rtr.`
		`Escape character is '^]'. WARNING!`
		`US Gov system! PL 99-474 prohibits unauthorized access. Violators may be fined or imprisoned. Persons using this system are subject to and consent to having all activities monitored/ recorded.`
		
		`User Access Verification`
		
		`Password:`
		
		FAA Channel 2: the IP address will be 172.25.XXX.71
			This command opens a telnet session with the router. The final router prompt will be
			`Password:`

12.	Type in the site selected user level password (default is cisco): *cisco***<CR>**	`rtr>` or `rtr2>` prompt is displayed.	User mode or user level in the router is indicated by the `>` prompt.
13.	At the `rtr>` or `rtr2>` prompt, enter: **enable<CR>**	the router prompt will be `Password:`	Command to enter privilege mode.

ATTACHMENT 5 (Continued)

CABLE INSTALL PROCEDURE

6.   Connect the P1 (DB60) male ends of the following new cables, which were labeled per
ATTACHMENT 3, to the serial module installed in the upper right rear corner (slot 2) of the
RPG router:

P1 End of Cable Terminates At	Cable Labels on P1 end	Terminating Location
Serial Module Slot 2 - Port 7	70/170W297 A2A1A2 7	Top left
Serial Module Slot 2 - Port 1	70/170W291 A2A1A2 1	Bottom row, 2nd from right
Serial Module Slot 2 - Port 2	70/170W292 A2A1A2 2	Bottom row, 2nd from left
Serial Module Slot 2 - Port 3	70/170W293 A2A1A2 3	Bottom left
Serial Module Slot 2 - Port 4	70/170W294 A2A1A2 4	Top right
NWS: Serial Module Slot 2 - Port 0	70/170W265 A2A1A2 0	Bottom right
FAA/DoD: Cable W265 is already installed for the distant MSCF.		

7.   Note the existing cable bundles that are secured to the left rear rail of the processor cabinet.

CAUTION

In the next steps, the new cable bundle will be secured to the
cabinet rail with cable tie fasteners. Do not secure the existing
cables that are intended to move with the sliding shelves. These
cables are purposely fastened with sufficient slack to allow proper
operation of the sliding shelves with equipment to be moved in and
out as needed.

8.   **FAA Redundant sites:** Repeat ATTACHMENT 5 in its entirety for the other channel.

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
BURLINGTON	KCXX	Move one modem from slot 14 to 17.
CAMP HUMPHREYS	RKSG	Modem already installed in slot 17.
CANNON AFB	KFDX	Move two modems from slots 13 and 14 to 17 and 18.
CARIBOU	KCBW	Move one modem from slot 14 to 17.
CEDAR CITY	KICX	Move one modem from slot 15 to 17.
CHARLESTON, SC	KCLX	Move one modem from slot 16 to 18.
CHARLESTON, WV	KRLX	Move one modem from slot 13 to 17.
CHEYENNE	KCYS	Move two modems from slots 13 and 14 to 17 and 18.
CHICAGO	KLOT	Move one modem from slot 14 to 17.
CINCINNATI	KILN	Move one modem from slot 16 to 19.
CLEVELAND	KCLE	Move one modem from slot 13 to 17.
COLUMBIA	KCAE	Move one modem from slot 11 to 18.
COLUMBUS AFB	KGWX	Move one modem from slot 15 to 17.
CORPUS CHRISTI	KCRP	Move two modems from slots 15 and 16 to 17 and 18.
DALLAS/FT WORTH	KFWS	Move one modem from slot 16 to 17.
DENVER	KFTG	Move two modems from slots 14 and 15 to 17 and 18.
DES MOINES	KDMX	Move one modem from slot 13 to 17.
DETROIT	KDTX	Move one modem from slot 14 to 17.
DODGE CITY	KDDC	Move one modem from slot 15 to 17.
DOVER AFB	KDOX	Move two modems from slot 15 to 17 and 16 to 18.
DULUTH	KDLH	Move one modem from slot 13 to 17.
DYESS AFB	KDYX	Move two modems from slots 14 and 15 to 17 and 18.

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
EDWARDS AFB	KEYX	Move two modems from slots 15 and 16 to 17 and 18.
EGLIN AFB	KEVX	Move three modems from slots 14 through 16 to 17 through 19.
EL PASO	KEPZ	Move one modem from slot 13 to 17.
ELKO	KLRX	Move one modem from slot 13 to 17.
EUREKA (BUNKER HILL)	KBHX	Move one modem from slot 13 to 17.
EVANSVILLE,IN	KVWU	Modem already installed in slot 17.
FAIRBANKS FAA (RPG 1)	PAPD	Move one modem from slot 15 to 17.
FAIRBANKS FAA (RPG 2)	PAPD	Move one modem from slot 14 to 17.
FARGO/GRAND FORKS	KMVX	Move one modem from slot 14 to 17.
FLAGSTAFF	KFSX	Move one modem from slot 13 to 17.
FT CAMPBELL	KHPX	Move one modem from slot 13 to 17.
FT DRUM	KTYX	Move one modem from slot 16 to 17.
FT HOOD	KGRK	Move one modem from slot 14 to 17.
FT POLK	KPOE	Move one modem from slot 13 to 17.
FT RUCKER	KEOX	Move one modem from slot 13 to 17.
GLASGOW	KGGW	Move one modem from slot 13 to 17.
GOODLAND	KGLD	Move one modem from slot 13 to 17.
GRAND ISLAND	KUEX	Move one modem from slot 13 to 17.
GRAND JUNCTION	KGJX	Move one modem from slot 14 to 17.
GRAND RAPIDS	KGRR	Move one modem from slot 13 to 17.
GREAT FALLS	KTFX	Move two modems from slots 13 and 14 to 17 and 18.
GREEN BAY	KGRB	Move one modem from slot 13 to 17.
GREER	KGSP	Move one modem from slot 13 to 17.
HOLLOMAN AFB	KHDX	Move one modem from slot 15 to 17.

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
NORFOLK	KAKQ	Add two new modems in slots 20 and 21.
NORMAN	KTLX	Unassigned modems already installed in slots 17 through 19.
NORTH PLATTE	KLNX	Move one modem from slot 13 to 17.
NORTHEAST ALABAMA	KHTX	Move one modem from slot 12 to 17.
NORTHERN INDIANA	KIWX	Move two modems from slots 12 and 13 to 17 and 18.
NRC #1	NRC1	Move one modem from slot 08 to 17.
NRC #2	NRC2	Move one modem from slot 09 to 17.
NWSHQ TESTBED	NHQ1	Move one modem from slot 13 to 17.
OMAHA	KOAX	Add two new modems in slots 17 and 18.
PADUCAH	KPAH	Move one modem from slot 13 to 17.
PENDLETON	KPDT	Move one modem from slot 13 to 17.
PHILADELPHIA	KDIX	Move one modem from slot 16 to 18.
PHOENIX	KIWA	Move one modem from slot 15 to 17.
PITTSBURGH	KPBZ	Move one modem from slot 14 to 17.
PLEASANT HILL	KEAX	Unassigned modems already installed in slots 17 through 19.
POCATELLO	KSFX	Move one modem from slot 13 to 17.
PORTLAND, ME	KGYX	Move one modem from slot 14 to 17.
PORTLAND, OR	KRTX	Move one modem from slot 14 to 17.
PRC RPG	NPC1	Move one modem from slot 08 to 17.
PUEBLO	KPUX	Move two modems from slots 15 and 16 to 18 and 19 and add two new modems in slots 20 and 21.
QUAD CITIES	KDVN	Move one modem from slot 13 to 17.
RALEIGH/DURHAM	KRAX	Modem already installed in slot 17.

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
RAPID CITY	KUDX	Move two modems from slots 13 and 14 to 17 and 18.
RENO	KRGX	Move one modem from slot 14 to 17.
RIVERTON/LANDER	KRIW	Move one modem from slot 13 to 17.
ROANOKE	KFCX	Move one modem from slot 13 to 17.
ROBINS AFB	KJGX	Move one modem from slot 15 to 17.
ROC DOD RPG (KREX)	DRX1	Modems already installed in slots 17 through 20.
ROC FAA REDUNDANT (RPG 1)	FOP2	Modems already installed in slots 17 through 20.
ROC FAA REDUNDANT (RPG 2)	FOP1	Modems already installed in slots 17 through 20.
RPG3 NWS RPG	NOP3	Modems already installed in slots 17 through 20.
ROC4 NWS RPG	NOP4	Modems already installed in slots 17 through 20.
ROC5 NWS RPG	NOP5	Modem already installed in slot 17.
SACRAMENTO	KDAX	Move one modem from slot 16 to 17.
SALT LAKE CITY	KMTX	Move one modem from slot 15 to 17.
SAN ANGELO	KSJT	Move one modem from slot 13 to 17.
SAN DIEGO	KNKX	Move three modems from slots 14 through 16 to 17 through 19.
SAN FRANCISCO	KMUX	Move one modem from slot 14 to 17.
SAN JOAQUIN VALY	KHNX	Move one modem from slot 14 to 17.
SAN JUAN FAA (RPG 1)	TJUA	Move two modems from slots 14 and 15 to 17 and 18.
SAN JUAN FAA (RPG 2)	TJUA	Move two modems from slots 14 and 15 to 17 and 18.
SANTA ANA MTS	KSOX	Move one modem from slot 15 to 17.

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
SEATTLE	KATX	Move two modems from slots 15 and 16 to 17 and 18.
SHANGHAI, CHINA		Modem already installed in slot 17.
SHREVEPORT	KSHV	Move one modem from slot 14 to 17 and add one new modem in slot 18.
SIOUX FALLS	KFSD	Move one modem from slot 13 to 17.
SITKA FAA (RPG 1)	PACG	Move one modem from slot 13 to 17.
SITKA FAA (RPG 2)	PACG	Move one modem from slot 13 to 17.
SLIDELL	KLIX	Move one modem from slot 15 to 17.
SOUTH KAUAI FAA (RPG 1)	PHKI	Move one modem from slot 12 to 17.
SOUTH KAUAI FAA (RPG 2)	PHKI	Move one modem from slot 12 to 17.
SOUTH SHORE FAA (RPG 1)	PHWA	Move one modem from slot 13 to 17.
SOUTH SHORE FAA (RPG 2)	PHWA	Move one modem from slot 13 to 17.
SPOKANE	KOTX	Move one modem from slot 14 to 17.
SPRINGFIELD	KSGF	Move one modem from slot 13 to 17.
ST LOUIS	KLSX	Move one modem from slot 15 to 17.
STATE COLLEGE	KCCX	Move one modem from slot 14 to 17.
STERLING	KLWU	Assigned modems are installed in slots 17 through 20. Install new modem in slot 21.
TAIPEI, TAIWAN	RCWF	Unassigned modems already installed in slots 17 through 20.
TALLAHASSEE	KTLH	Move one modem from slot 13 to 17.
TAMPA	KTBW	Move two modems from slots 13 and 14 to 17 and 18.
TOPEKA	KTWX	Move one modem from slot 14 to 17.
TRAINING CENTER #1 NWSTC	NTC1	Move one modem from slot 09 to 17.
TRAINING CENTER #2 NWSTC	NTC2	Move one modem from slot 09 to 17.

ATTACHMENT 6 (Continued)

MODEM INSTALLATION/RELOCATION/SETUP PROCEDURE

Table 1: Modem Installation/Relocation

Site Name	Radar 4 Letter ID	Modem Move
TUCSON	KEMX	Move one modem from slot 14 to 17.
TULSA	KINX	Move one modem from slot 15 to 17.
VANCE AFB	KVNX	Move two modems from slots 14 and 15 to 17 and 18.
VANDENBERG AFB	KVBX	Move one modem from slot 15 to 17.
WDTB RPG	NOP5	Move one modem from slot 16 to 17.
WESTERN ARKANSAS	KSRX	Move one modem from slot 15 to 17.
WICHITA	KICT	Move two modems from slots 13 and 14 to 17 and 18.
WILMINGTON	KLTX	Move one modem from slot 13 to 17.
YUMA	KYUX	Move one modem from slot 15 to 17.

ATTACHMENT 9

EFFECTIVITY

NWS

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
			Eastern Region					
ALBANY	ALBANY, NY	RPG	ALY	WN9518		1		1
BINGHAMTON	JOHNSON CITY, NY	RPG	BGM	WN9515		1		1
BOSTON	TAUNTON, MA	RPG	BOX	WN9509		1		1
BROOKHAVEN	UPTON, NY	RPG	OKX	WN9912		1		1
BUFFALO	BUFFALO, NY	RPG	BUF	WN9528		1		1
BURLINGTON	SOUTH BURLINGTON, VT	RPG	BTV	WN9617		1		1
CARIBOU	CARIBOU, ME	RPG	CAR	WN9712		1		1
CHARLESTON, SC	CHARLESTON, SC	RPG	CHS	WN9208		1		1
CHARLESTON, WV	CHARLESTON, WV	RPG	RLX	WN9414		1		1
CINCINNATI	WILMINGTON, OH	RPG	ILN	WN9710		1		1
CLEVELAND	CLEVELAND, OH	RPG	CLE	WN9524		1		1
COLUMBIA	WEST COLUMBIA, SC	RPG	CAE	WN9310		1		1
GREER	GREER, SC	RPG	GSP	WN9312		1		1
MOREHEAD CITY	NEWPORT, NC	RPG	MHX	WN9307		1		1
NORFOLK	WAKEFIELD, VA	RPG	AKQ	WN9952		1	2	1

I1

ATTACHMENT 9 (Continued)

EFFECTIVITY

NEXRAD Site Name	City, ST	EQP	SID	ORG Code	Kit A	Kit B	Kit C	Kit D
PHILADELPHIA	MOUNT HOLLY, NJ	RPG	PHI	WN9950		1		1
PITTSBURGH	CORAOPOLIS, PA	RPG	PBZ	WN9917		1		1
PORTLAND, ME	GRAY, ME	RPG	GYX	WN9938		1		1
RALEIGH/DURHAM	RALEIGH, NC	RPG	RAH	WN9306		1		1
ROANOKE	BLACKSBURG, VA	RPG	RNK	WN9954		1		1
STATE COLLEGE	STATE COLLEGE, PA	RPG	CTP	WN9925		1		1
STERLING	STERLING, VA	RPG	LWX	WN9931		1	1	
WILMINGTON	WILMINGTON, NC	RPG	ILM	WN9301		1		1

Southern Region

ALBUQUERQUE	ALBUQUERQUE, NM	RPG	ABQ	WP9365		1		1
AMARILLO	AMARILLO, TX	RPG	AMA	WP9363		1		1
ATLANTA	PEACHTREE CITY, GA	RPG	FFC	WP9219		1		1
AUSTIN/SAN ANTONIO	NEW BRAUNFELS, TX	RPG	EWX	WP9253		1		1
NORTHEAST ALABAMA	HUNTSVILLE, AL	RPG	HUN	WP9914		1		1
BIRMINGHAM	ALABASTER, AL	RPG	BMX	WP9957		1		1
BRANDON, MS	JACKSON, MS	RPG	JAN	WP9235		1		1
BROWNSVILLE	BROWNSVILLE, TX	RPG	BRO	WP9250		1		1